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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,471	12/12/2003	Takashi Murai	Q78941	8819

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EXAMINER

COMPTON, ERIC B

ART UNIT	PAPER NUMBER
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3726

DATE MAILED: 03/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/733,471

Applicant(s)

MURAI ET AL.

Examiner

Eric B. Compton

Art Unit

3726

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 10-12,33-37,40,41 and 43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10-12,33-37,40,41 and 43 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☒ Certified copies of the priority documents have been received in Application No. 10/093,373.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 40-41 and 43 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 2001-050264 to NSK LTD.

NSK discloses rolling element for a bearing and a bearing incorporating such rolling element, wherein the rolling elements include an outer diameter portion with a rolling contact face that has curvatures in an axial direction thereof and a radial direction normal to the axial direction and including at least one plane. See Fig. 2. The roller bearing, having the same featured as claimed, is also discloses. See e.g., Fig. 1.

"[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (citations omitted).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 10-12, 33-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2001-050264 to NSK LTD in view of U.S. Pat. 1,784,463 to Nice.

NSK disclose the roller element disclose above. However, the reference is silent with respect to the method of forming the roller elements.

Nice discloses a method for forming a roller element comprising: forging a billet to form a ball blank and removing flesh to from to produce the rolling element shown in the Figure. The steps of forging a ball member were well known at that time. See JP10-175124 to Lee; U.S. Pats. 1,431,183 to Rockwell; 1,204,127 to Canda; and/or 665,905 to Hill (disclosing forging wire stock to form ball element).

In additional, the prior art is replete with examples of forging techniques for forming roller bearing elements. U.S. Pat. 1,701,736 discloses forming a tapered cylindrical roller bearing elements by a forging process. See *a/so* DD 122651. JP 07-185716 discloses a method for forming bearing elements having by a forging process. See *e.g.*, Fig. 2. U.S. Pat. 3,337,278 discloses various roller bearing element design which can be made by either of two methods: forging or casting. See Col. 3, lines 6-15. SU 706177 discloses forging die to form a roller bearing element having a flat bottom blended into a truncated cone. U.S. Pat. 2,867,000 discloses a rotary forging method to

Art Unit: 3726

form roller elements having "pear-shape rather than spherical." Col. 3, lines 20-27. U.S. Pat. 5,976,053 discloses forging another type of roller element.

The prior thus clearly demonstrates that forging is known to form roller bearing elements, which are completely spherical (as noted in the prior rejection) and which have non-spherical attributes. One skilled in the art would be capable of adapting and modifying a forging process (and apparatus) for various roller designs.

Regarding claims 10 and 34-36, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have formed the roller element of NSK by forging and removing flesh, in light the teachings of Nice (and other cited prior art), in order to accurately size the blank requiring just minimal material removal. See e.g., Nice, Col. 1, lines 7-28.

Further regarding claims 11, 34, and 37, Canda discloses an ejector pin (22) for ejecting the blank balls. Likewise, Rockwell, in Figure 2, shows, a die having what appears to be an ejector. In Nice, the ball blank is formed first, and then subjected to grinding.

Further regarding claim 12, in Nice, the blank ball thus forged has a connecting portion between the contact face and one of the at least plane and has predetermined radius of curvature.

Further regarding claim 33, Rockwell, Canda, and Hill all show a dimpled recess is formed during the forging process.

### ***Response to Arguments***

Art Unit: 3726

Applicant's arguments filed January 6, 2006 have been fully considered but they are not persuasive.

Shoda

First, Applicant argues on page 7 of the Response (emphasis added):

For example, figure 2 shows a rolling element, however, this rolling element lacks a plane. The Examiner seems to allege that the rolling element of figure 2 shows a plane. However, this element is actually a hollow element having an internal cylindrical surface. More specifically, Shoda reveals that rolling element 5 of figure 2 is configured such that two or more rolling elements are incorporated between the bearing washers and guided with cage 6 (shaft element) which is disposed within the hollow internal portions of the rolling elements (see Figure 1). Thus, Shoda fails to disclose a rolling element having at least one plane or having connecting portion that is located between the rolling contact face and one of the at least one plane.

However, after review of the reference, Examiner cannot agree with Applicant's characterization of Shoda, that Shoda lack at least one plane (and is hollow).

Shoda discloses with respect to the rolling elements (5):

A rolling element is the arbitration configuration which outer-diameter 5a used as a rolling contact side has curvature in shaft orientation, and had the radius of a minor diameter rather than each radius of raceway-surface 1a and 1b, and 2a and 2b. This rolling element 5 While the adjoining rolling element is arranged in the shape of a crossover by turns, respectively, outer-diameter 5a of each rolling element 5 is carrying out 2 point contact in raceway-surface 1a and 1b of the bearing washer 1 which is always one side, raceway-surface 2b of the bearing washer 2 of another side, 2a.

For example, a rolling element 5 is a letter ball of vertical cutting (the thing of the structure which cut the vertical part of a ball and formed the phase confrontations 5b and 5b is said.) which has the phase confrontations 5b and 5b of a lot. It is below the same. While each rolling element 5 and 5 – are incorporated so that rotation medial-axis 5c which carries out a perpendicular to these phase confrontation 5b and 5b may become a letter of a crossover, respectively, outer-diameter 5a of each rolling element is carrying 2 point contact in raceway-surface 2b of the raceway surface 1a and 1b of the bearing washer 1 which is always one side, and the bearing washer 2 of another side, and 2a.

Art Unit: 3726

It is not limited, and especially the cutting width of face of the upper and lower sides of an up-and-down cutting rate may not be equal or equal, and that of a rolling element 5 is selectable to arbitration within the limits of this invention. That is, the phase confrontations 5b and 5b of a rolling element 5 may be symmetrical, or may be unsymmetrical, and all are within the limits of this invention.

JPO Machine Translation at [0009-0011] (emphasis added). This is entirely consistent with Applicant's own disclosure. See Specification at pages page 17, lines 10-17 (disclosing essentially same process) & Figure 27A (showing cutting step); see also DE 10027105 & U.S. Pat. 6,382,836 (both to Shoda (NSK), disclosing a similar invention). Furthermore, Applicant even expressly refers Shoda (Japanese Patent Laid Open No. 50264/2001) noting:

The second aspect of the invention has the plane of at least one plane which is provided with the recess as the lubricant pool, and incorporates the rolling elements between the inner and outer rings via the retainer, the rolling element in advance connecting the cross point between the plane and the outer diameter portion having the curvature at a tangent R, and therefore exhibits the particular working effects as follows together with those of Japanese Patent Laid Open No. 50264/2001.

Specification at page 58, lines 1-9 (emphasis added). Thus, there is no evidence to corroborate Applicant's argument that Shoda lacks a plane and is hollow.

Nice (and other reference)

Second, Applicant alleges that Nice does not disclose forging a material to form a ball member having at least one plane. See Response, page 5. As noted above, Nice was relied on for teaching forging ball members and subsequently removing flash (or fins). The Examiner further relied on additional teachings to show forgings having other than spherical design (including at least one plane):

In additional, the prior art is replete with examples of forging techniques for forming roller bearing elements. U.S. Pat. 1,701,736 discloses forming a

Art Unit: 3726

tapered cylindrical roller bearing elements by a forging process. See *also* DD 122651. JP 07-185716 discloses a method for forming bearing elements having by a forging process. See *e.g.*, Fig. 2. U.S. Pat. 3,337,278 discloses various roller bearing element design which can be made by either of two methods: forging or casting. See Col. 3, lines 6-15. SU 706177 discloses forging die to form a roller bearing element having a flat bottom blended into a truncated cone. U.S. Pat. 2,867,000 discloses a rotary forging method to form roller elements having "pear-shape rather than spherical." Col. 3, lines 20-27. U.S. Pat. 5,976,053 discloses forging another type of roller element.

The prior thus clearly demonstrates that forging is known to form roller bearing elements, which are completely spherical (as noted in the prior rejection) and which have non-spherical attributes. One skilled in the art would be capable of adapting and modifying a forging process (and apparatus) for various roller designs.

Rejection, page 4 (emphasis added). Applicant however, did not address any of these references. Furthermore, the Examiner did not solely rely on Nice, but these references as well. See *Id.* ("Regarding claims 10 and 34-36, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have formed the roller element of NSK by forging and removing flesh, in light the teachings of Nice (and other cited prior art), in order to accurately size the blank requiring just minimal material removal.).

#### Conclusion

Having fully addressed Applicant's arguments, the Examiner maintains the rejections above are properly maintained.

#### **Conclusion**

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP



§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

#### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric B. Compton whose telephone number is (571) 272-4527. The examiner can normally be reached on M-F 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Nguyen can be reached on (571) 272-4491. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3726

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Eric B. Compton  
Primary Examiner  
Art Unit 3726

ebc